

sulfonic acid, polyamic acid, polyphosphoric acid, polymers containing acid chloride groups (-CO-Cl) and polymers containing sulfonyl chloride groups (SO₂Cl).

1 -87 3 The electrically conductive compatible polymer blend composition defined in claim 85 wherein said Lewis acid polymer dopant is polyamic acid.

1 -88 4 The method of preparing a liquid electrically intercalated molecular polymer blend defined in claim 86 wherein said Lewis acid polymer dopant is polyamic acid.

REMARKS

In the last submission to the Patent Office, one of the inventors, Dr. Angelopoulos performed a series of experiments in which she obtained data that establish conclusively that the composition of the present invention is different in kind rather than degree from the prior art compositions. These data, establishing the difference, were embodied in a Declaration under 37 C.F.R. § 1.132 submitted August 15, 1996, and were embodied in to visually demonstrate that the only circumstance under which one can obtain the product as claimed is by blending a first solution comprising a Lewis base electrically conductive polymer in undoped form in an first organic solvent with and a second solution comprising a Lewis acid polymer dopant in a second organic solvent. The video tape demonstrated other combinations of mixing the polymers such as the prior art cited by the Examiner result in a precipitate. The present invention does not form a precipitate upon mixing. The prior art cited by the Examiner does not disclose the blending of the electrically conductive polymer and the polydopant both in the liquid state so that no precipitate is formed.

In reviewing each of United States Patents 4,933,106 to Sakai et al., 4,940,517 to Wei, 5,068,060 to Jen et al. or 4,771,111 to Tieke et al., it is clear that Wei et al., Jen et al., Tieke et al. or Li et al. alone or in combination, do not teach combining a

polymer in undoped form in a solution with a dopant which is in another solution (of the same or different solvent), the two polymer-containing solutions are then mixed together to form a doped polymer in combined solution. The references noted teach polymerizing the undoped monomer to a polymer in a solution containing the dopant. After polymerization, the resulting doped polymers resulting from each of the references are not soluble; on the contrary, they precipitate out of solution.

The Examiner has contended that the compositions of the present invention are obvious from the specific compounds disclosed in the prior art references enumerated above. Persons skilled in the art of conducting polymers, know that the processing of constituent polymers in the blend has a significant impact on the properties of the constituent polymers, including their solubility conductivity, optical properties, etc. As a result, polymers that possess identical nomenclature, in fact are different and have different properties.

Dr. Angelopoulos has submitted data establishing that it is the molecular structure that controls the properties of conducting polymers. Molecular structure includes, but is not limited to, the chain conformation of the polymer, the interchain configuration and the polymer chain packing.

The common theme present in the prior art references cited by the Examiner to Sakai et al., Wei et al. and Tieke et al. is that they all teach the *in-situ* polymerization of monomers such as aniline, pyrrole, etc. in the presence of an electrolyte such as a polyacid. Applicants' distinguishing feature is the use of a liquid conductive compatible polymer blend composition.

Applicants now present herein claimed embodiments of the present invention in which the Lewis acid polymer dopants and the Lewis base electrically conductive polymer are each covered in the form of a Markush claim (claim 85) and the constituents comprising the process are covered in Markush form (claim 86).

As a result of a telephone conference between the Examiner and applicants' attorney, the Examiner agreed to allow claims conforming to newly added claims 87 and 88 which contain a Markush grouping defining the Lewis base electrically conductive polymers and polyamic acid as the Lewis acid polymer dopant.

The arguments submitted in prior responses and during the interview presented to the Examiner with respect to this case are hereby incorporated by reference herein.

In view of the modifications to the claims and based upon the arguments submitted at the interview and submitted herewith, allowance of the claims is respectfully requested.

The Commissioner is hereby authorized to charge payment of any necessary fees to associated with this communication to Deposit Account 02-1651

Respectfully Submitted,



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MAILING CERTIFICATE

Date of Deposit: April 23, 1997

I hereby certify that this amendment is being transmitted on the date indicated above by telefax to (703) 305-3599 and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231

Thomas A. Beck
Person Mailing


Signature
4/23/97